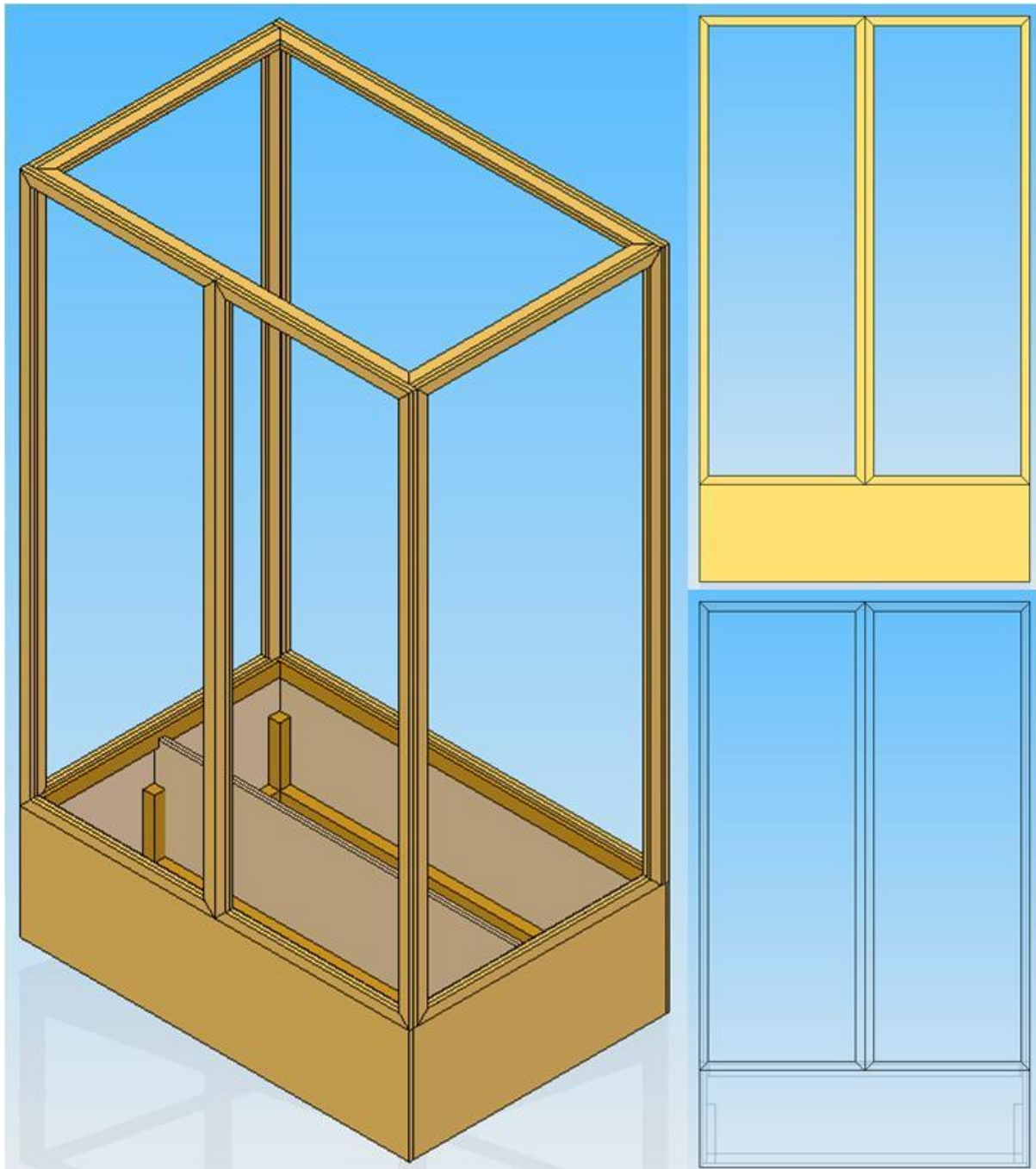


Well finally, it has begun! I'm still in shock that I've actually started, but I have, so now it shouldn't take me so long to get it finished (I hate leaving things unfinished, although I am a little bit too busy these days for my own good!). Anyway, let's begin (sorry if some bits are a bit 'simple' but I thought I'd make this open to all possible users so anyone can have a go at building it if they like!)

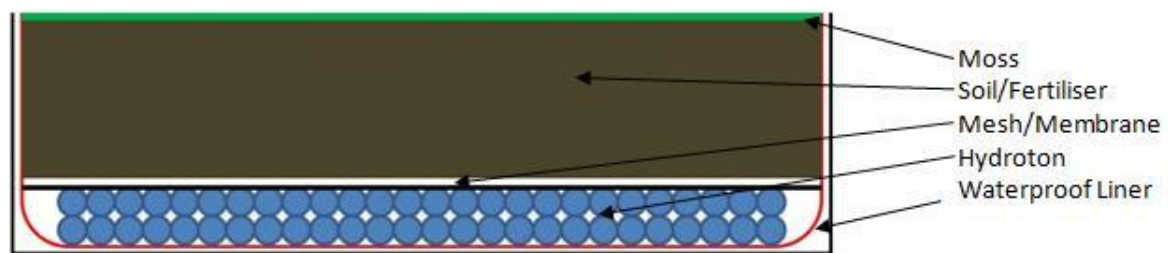
Firstly, decide on a plan that you like. This is probably the most important thing as it'll help you decide on the wood you're going to use and the other bits and bobs you'll need. Here are my plans (I have some pretty good modelling software, so that's why it looks so neat!)



The plan of your cage is ultimately up to you, but that was mine to hopefully spark some imagination. This stage literally took me months of on off planning as there were so many little

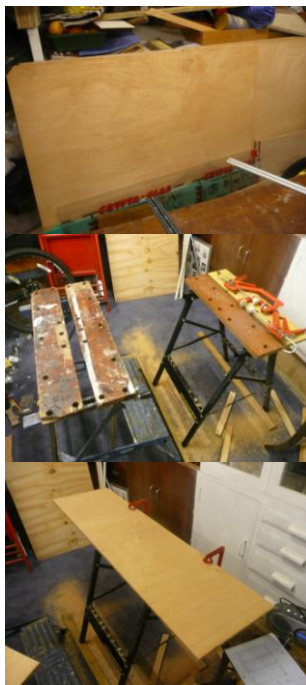
things that kept coming up as I was imagining my design in my head. I expect these plans won't make much sense till I start to show some pictures, so I'm just going to get on with it!

So, the best place to start is with the base. I wanted to build a base that would more realistically recreate a "natural environment" so I planned to build it like a planter and literally create a mini ecosystem at the bottom. Water retention was my biggest problem, but I've used the tried and tested method of hydroton (small clay balls) to create a drainage area where I can, if necessary, remove the water from. On top of this will be a fine mesh that I will then put the soil/fertiliser onto. Into this I will literally plant my plants, then I will cover all the exposed soil with moss, to make sure that Dante doesn't eat it. It should look something like this (sorry for the crude paint drawing):



I will also introduce a few worms and other creepy crawlies to breakdown the leaf matter and waste that falls into the bottom that I don't pick out (which should act as a natural fertiliser) and should Dante spot any he is free to eat them!

Right, so let's get building! Some of the little quirks will become apparent as the build goes on!



Obviously, the first step is to go out and buy everything! You might as well buy it all in one go to save yourself the hassle of multiple trips, so write yourself out a nice list!

Then set yourself up a good space to work (I have a garage to use, but I know not everyone will be as lucky) and make sure you get a few clamps and work benches to hold everything down while you work on it.

I'm old fashioned and so use a hand saw to cut most of my wood, but whatever method you use, make sure it's a nice straight line. Also, one tip, if you're making multiple cuts into a piece of wood, measure each new cut after you make the first, otherwise, the measurement you made will be wrong as cutting wood will always result in a small amount being lost (It may only be a few mm, but it's enough to throw things out of line!)

Eventually, you'll end up with the bits you need to make the bottom inner skin (if you're going to make a design like mine that is). You'll need a base, two long sides and two short sides.



Because this bottom is going to take a lot of weight, I decided to really strengthen it by securing everything together with a frame in the bottom. I think this is necessary as I wanted something that was going to be really strong, and secure to move if necessary. You can probably do without it if you're making a smaller size, but because I used thin plywood and it is going to be a large enclosure, I decided I should make things as secure as possible!

So, I got some 34mm x 34mm wood to make a frame around the bottom. Here's where my favourite tool comes into play! I used a chop saw to cut the wood into the lengths I needed (it's a brilliant tool that I use all the time!) I doubt you'll have one kicking around (this is my old man's) but it certainly make things easier for cutting this type of wood and will save so much hassle later when you come to making mitre joints.

Once I had all of the bits cut, I laid it out on the floor to make sure it all fitted together as I expected (thankfully it did). I then put one screw into each supporting piece of the frame from the top to make sure they stayed in place when I turned the base over and put the rest of the screws in through the bottom. Always make sure that your screws 'bite' deeper into the second bit of wood than the first, this will make it a stronger joint. You can use glue on these bits if you'd like, but I didn't see the point as this was only an internal support that you're not going to see (plus, there will be an outer skin anyway). I then turned it over and put what I thought was an appropriate amount of screws in (this can be your judgement, but I only used 4 (not including the initial placement screw) on the long edge and 2 on the short.



Then I fixed on the sides (this was a little trickier), but just make sure you hold them in place as best you can. To make things considerably easier, drill pilot holes to make sure that the wood lines up and joins together properly. This will stop your screws going in the wrong direction and sticking out all over the place and prevent the wood from splitting.

I then put in some upright supports so that all the sides lined up neatly, as wood has a tendency to warp and bend a bit.

Once this is done, we have one finished inner bottom skin.

Then I made the other one (considerably quicker than the first after knowing what to do a how to do



it more effectively!). That's also a good tip, if you don't know how to do something, or it's your first attempt, try it on some scrap material you have kicking around to make sure it works first and that you can actually do it!

Here they both are:



I'll give a point to anyone who can tell me why I had to build 2 bottom parts?!

Well, I wish I could take the credit for it, but I can't! It was my dad's idea, and a very good one at that! Basically, because of the size of my cage, I was going to put it all together in situ, but, sadly, this would mean I'd have to fill and plant the base indoors! Not to mention, unplant it should I ever need to move it! So my dad suggested making the base into 2 small planters that could be easily taken apart and moved! This way it's easy to carry and actually fits through doors! If anyone got that, you can be very impressed by yourself!



The next thing was to build the outer skin so that the two inner pieces will stay together and look like a single unit.

The first thing to do is line them up and clamp them in place.

Once you have them clamped in place, re-measure all the dimensions as something will be slightly off (it always is) and then cut the new pieces you need.

When fixing the outer skin in place it's important to clamp everything before you start trying to join them all together to make sure they don't move around or become skewed when the screws go in. It's also best to have 2 drills available if possible, one to drill a pilot hole, the other for use as the screw driver. It's not a major issue, it just saves you so much time instead of having to switch out the drill bit all the time. You can also

counter sink these screws if you want, but I didn't see the point as they were going to be covered up again anyway.

Once it's all finished and screwed together you should have a very sturdy (and quite heavy) base for your enclosure! Don't worry about the joints not looking perfect or quite ragged, this will all be covered up in a later part of the build, but we'll get to that later! I've put a picture of my joints in so you can see what I mean!



Now that the base is together, it's time to take it apart again to paint it! Well, the outside edges at least! When you take it apart, label the inside edges of every piece so you know which way up/which way round/and on what side they go, so that when you come to put it back together again, all the holes you've drilled

will line up nicely. I used letters to say which side was which (on both the base and outside skin) and an arrow pointing upwards to show which way up. Sounds like a small thing, but it will come in useful in the future when you need to rebuilt it or move it around!

While the outside are drying, it's now time to waterproof the base parts by installing the waterproof membrane. The best thing to use is pond liner or some other waterproof material. I had some old stuff laying around which does the job nicely. It's a little tricky to get it in place nicely, so it does take a bit of work to cajole it into the sort of position you want.



So, start off with your liner in a horrible pile. Next, lay it out flat on the floor and measure out the sort of size you'll need to 'fill' the base. This needs to include the distance up the sides of the base and enough for a lap over the edge (see later pictures). Don't worry about getting this accurate, it's just to make it easier to work with but make sure you don't cut yourself short! Once you have this rectangular piece cut, clear yourself a nice area to work with, and lay it over the base. Then, using something heavy (I used the bag of hydroton I bought to fill the base with) place this in the middle of the lining so that it 'falls' into place. You'll then



have to smooth things out by pushing the corners down and creating folds in it so that it nicely matches up to the inside of the base. You may need to use clamps to hold it in place while you sort out the other end.



Once you have the liner in place, cut down where the corners are so that you can fold the excess over the sides as pictured. Use a clamp to hold the sides in place, then either staple or tack the liner on the **outside** of the base (this is to make sure the inside is one whole unit with no holes where it might leak if it rips where the staples/tacks are). Complete this all the way round, trim off any excess you don't need to tidy everything up and you're done. You should have a completely sealed base. You should give

it a little test by putting some water in and leaving it for a while to see if it goes down. If it does, you'll have to make a few repairs like you would on a bicycle tyre puncture, but that doesn't take long. Once you have them both done, you should have something like:



Now that we have this waterproofed, we need to put the outside skin back on to join the base together as a single unit. Clamp everything together again and line up the pieces as required. It's quite useful to use a nail or something to make sure everything lines up with the original holes that you put in. Screw it all together and

you should end up with something like this:



Right, now we have the base finished, we need to add the inside rim so that we can join the sides to the base and complete the enclosure.



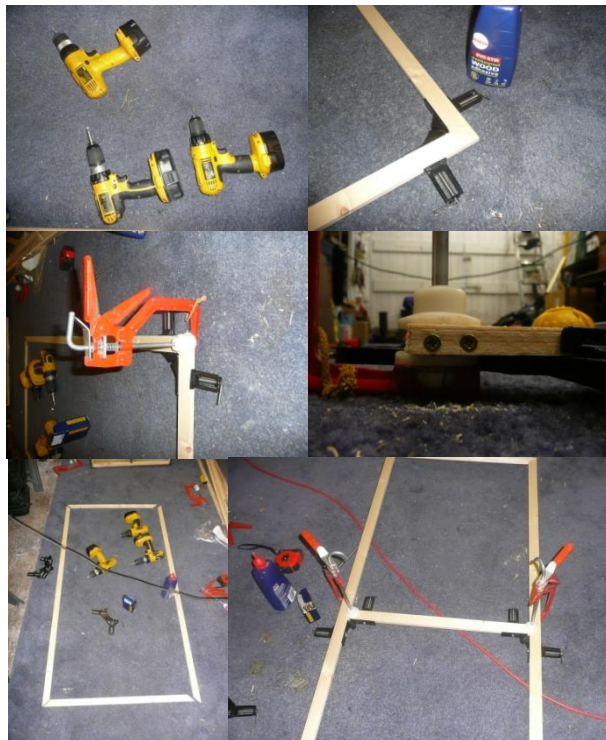
Firstly measure along the long edge of the insides and cut the lengths of wood you need. You need to re-measure the inside length as the liner will have added a little thickness to the size of the wall. When you cut the length, make it a few mm more so that it is a really snug fit. Then, with a few clamps, hold the wood in place and screw it in place. Use quite a few screws in these pieces as they will take quite a bit of weight and form the backbone of the structure. You need to pre drill these holes to stop the wood splitting. Make sure there is enough of a bit sticking above the top of the base so that you can screw the sides into it when they're built (I made it roughly 50:50 between the bit in the base and the bit sticking above). Then, measure the remaining sides using the wood you've just added for the rim. Once you have them cut, measure where the two bases join, and remove a 'chunk' so that when the side is dropped in place, everything fits together and is of a similar height. This can be quite a tricky bit to achieve, but make it as good as you can. As



you can see in the pictures, once you get it all set up, it should look like a complete unit. Next, we need to cut a piece so that it can go over the top of the join in the base units to make sure that no water can leak through. Once this is done and fixed in place take it all off and stain it all. Once it's all stained it should look like:



Now comes the hard bit, making the sides! It shouldn't be too bad it all honesty, just make sure you have the space to work with! I've built them in such a way that the mesh is sandwiched between two frames so you can't see any staples that just make it look really untidy. There are other ways, but this is the way I'm happy with.



I decided to use mitre joints on my build as they look pretty nice and are quite easy to put together if you have the right tools! I picked up 4 mitre clamps off ebay for £10 including postage and packaging a while back and they're very very handy! You don't need 4, 1 is sufficient, but it just makes things easier to get all the joints lined up and ready to fix in place at the same time as you know it all lines up properly. So, cut all the pieces of wood you need (there will be a lot if you follow my approach) with ends cut at 45° making sure the longest side is the correct height you were after (the bottom left picture shows what I mean if you don't know) and once you have them all lined up and everything looks good, start joining them together. Firstly, put wood glue in the joint (enough so that when you push the pieces back together and little comes out of the top and bottom and wipe off the excess – this makes sure that water can't get in). Then, you

must pre drill the hole with a pilot drill and also use a countersink bit to make a recess for the screw



head so that when the screw is driven in, the wood does not split and the head will sit flush with the outside edge of the wood. You can see what I mean in the picture (that corner needed a little more sanding!). I also used a clamp to keep the pieces of wood at the same height when the screws were driven in as there is the possibility that it might move/pull the wood up or down. Once you have one corner done, rinse and repeat for all the other corners (there will be a number) then you'll have the main frames! I decided to add a middle bar across my sides for two reasons. The first was that the frames were 1.6m tall and I thought they could do with the extra rigidity, and the second was that the mesh I ordered came at the wrong size, so I had to do it in two sections, so having a middle bar meant there was no wastage of mesh (I was a little annoyed at first when the mesh came at the wrong size, but it worked in my advantage!) Once these were all done, you just have to paint/stain them all! This can be quite a long and boring process, so make sure you have a radio or something else with you when you do! I used sadolin garden shed paint as I knew it would be able to stand up to the strain of water/heat/light etc as it endures the weather all year long. Anything of a similar nature will be fine to use.

However, once that task is done (I stained mine twice just for the extra fun. Not really, but I would advise doing it twice for the protection of the wood) you should have something like this:



Now we just have to add the mesh and sandwich the frames together and we have sides!



Adding the mesh is easy. Just lay the roll of mesh across the frame, put a staple in one corner, pull the mesh tight, and put a few more staples down one side. Only put a couple, then switch and work down the other side from that corner. This way, the mesh will be pulled tight and should have no sags in it. Once you get near to the end/side, just cut the mesh using a pair of scissors (it should cut really easily so any scissors will do!) Once this is done, lay the other frame on top, clamp it in place and screw them together (I used quite short screws as I obviously didn't want the end poking out, so be careful with that). I didn't pre drill these screws or bother gluing the joints as the screws were quite small and gluing just seemed like a waste of time as I was going to be using a lot of screws! When you put the whole enclosure together, make sure the screw heads are on the inside, otherwise it would look pretty rubbish! Anyway, once they're all finished, you should have a stack of sides like this:





Now you have all the sides built, just start adding them to your base. I started with the back as I knew I was going to screw the back into the sides and top, so it made sense. Then I added the sides and finally the top:



Then, put your hinges on your doors and fix them to your enclosure (I used some planks of wood to hold them in place till I'd got the hinges lined up and screwed in place).



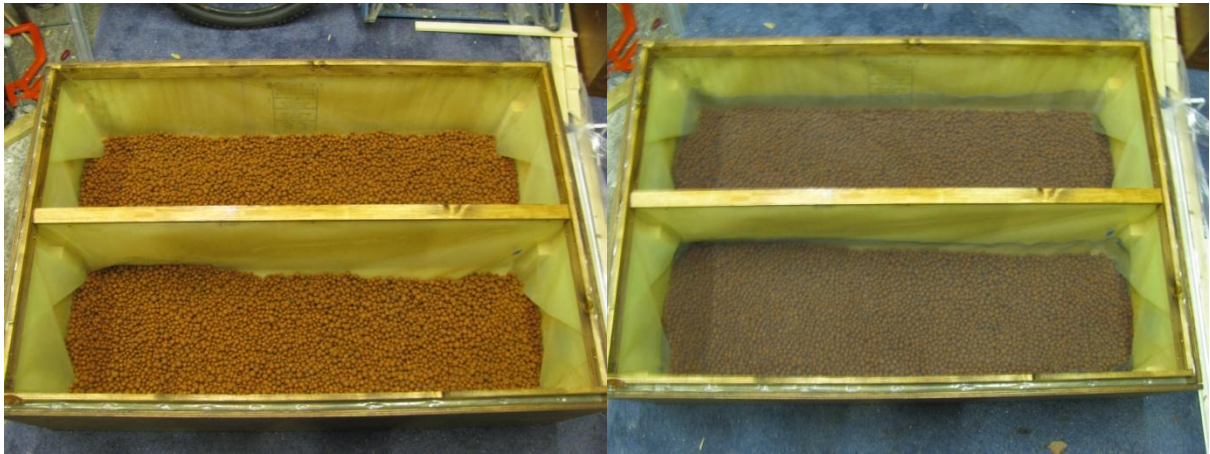


Then, you'll have a complete enclosure! Put some additional screws wherever you feel necessary. I added a few more to the top to make sure everything was bound together nice and tightly!

Once this is built in your garage, you need to disassemble it and take it inside in pieces and rebuilt it all over again!



Once you get the base in doors, the first thing to do is put in the hydroton and mesh to separate it from the soil:



Once you have this done, you could either add the soil and begin planting the enclosure or wait and rebuild it first! The second option is the easier as once it is full with soil and what not, it will be heavy and hard to move once assembled.

Once it's rebuilt (no pics as it would just be repetitive!) just add your compost and plant your plants in the places that you want and you'll be very pleased that you have something that resembles a chameleon enclosure!



Once you're happy with your plants, start adding your wood, vines and all other manner of bits and pieces until you're happy with it.

Now that you have all this done, the last concern is water and lighting! I had some misting nozzles to fit, so I just did those as you would for your "generic misting system" then I made my lighting. I thought I'd include this part as it could save you a small fortune. So, instead of buying very expensive reptile tube starter units (or whatever they call themselves) go to a local hardware store (UK people – Wickes are the cheapest) and buy yourself some normal household fluorescent tube fittings. Make sure it is the same length as your enclosure as this will be important later.



Once you have it, get yourself some normal 3 core electrical wire and a plug with a 5 amp fuse (this is what lighting circuits run off) then wire it up as you would wire anything up. Once this is done, build yourself some little holders (its best to look at the picture – it is a rubbish picture tough) that go up and over the whole fitting and will hold the fitting up above the top of the cage. I've painted mine white with matt emulsion to make it look like the fitting. Once you have them made (they can be crude as you can see in my picture), fit them on to the ends of the tube holders and this will mean they can sit directly on top of your enclosure at the right height! Add reflectors and change the bulbs to suit (ie UV/plant/white etc) and you're away. Each holder cost me £6 and came with a normal tube. Bargain compared to the price you'd pay for a starter unit and these are just as good if not better! I now have three tubes on top of my enclosure (A UV tube, a plant growth tube and just one it came with to provide a nice colour of light – as the plant and UV tubes both throw out a blue colour light) with the third tube sitting in the middle

of these two.

Then, to hold my basking light in place, I made another little frame that rests on top of the fluorescent fittings (pictured above).



With all this done, I finally had a finished enclosure with everything in it and it looked like this:







Hopefully this will prove useful to someone out there and spark a few ideas! Feel free to ask any questions if you have any and distribute this as much as you want. If you need more instructions/bigger pictures, just give me a shout and I'll email them to you or something. Well, I think that's all so take it easy and have fun building your chameleon's dream enclosure!